Lace: 1918, 1919
1931, 1932,
1934

ANNUAL REPORT

DIVISION OF STANDARDS

DONALD B. FALVEY, DIRECTOR

FISCAL YEAR ENDING JUNE 30, 1977

INTRODUCTION

The Division of Standards is one of the principal consumer protection and consumer service agencies within the structure of State government. Its activities cover a broad spectrum with major emphasis in the area of weights and measures administration, the technology of weighing and measuring devices and the enforcement of laws relating to weights and measures that deal with the sales of food, fuel and all the necessaries of life. The Division acts as liaison between municipalities, industry and the National Bureau of Standards on measurement problems. Quality standards are maintained with respect to gasoline, motor oils, heating oils and antifreeze. Our measurement capabilities are also reflected in accuracy standards relating to clinical thermometers. The Division enforces laws and regulations relating to unit pricing and electronic retail scanning checkout systems. The Division is the licensing agency for motor fuel and motor oil dealers, hawkers and pedlers, transient vendors and the registration of manufacturers and distributors of antifreeze. During the current period of energy uncertainty, the Division has been delegated the function of being the State Allocation Office to handle hardship requests for various classes of petroleum products. The role that the Division of Standards plays in the daily life of all citizens of this Commonwealth and many areas of industry and agriculture will indeed point out that the Division is deeply involved in the "Consumers Affair" and this includes all consumers--the general public, industry, business and government.

Today's fundamental consumer protection laws have been built on a foundation as old as the nation itself. Among the earliest laws enacted during the colonial period were weights and measures laws to protect the colonists in the buying, selling or exchanging of property. Massachusetts was among the first states to establish and enforce standards for weights and measures. Today, more than 300 years later, the enforcement of laws relating to weights and measures and other measurement standards activity rests with the Division of Standards in the Executive Office of Consumer Affairs.

It may be well to reflect on one of the most quoted statements concerning the significance of weights and measures. The following is an extract from the Report on Weights and Measures made by Secretary of State John Quincy Adams in his report to the U. S. Senate on February 22, 1821.

"Weights and measures may be ranked among the necessaries of life to every individual of human society. They enter into the economical arrangements and daily concerns of every family. They are necessary to every occupation of human industry; to the distribution and security of every species of property; to every transaction of trade and commerce; to the labors of the husbandman; to the ingenuity of the artificer; to the studies of the philosopher; to the researches of the antiquarian; to the navigation of the mariner and the marches of the soldier; to all the exchanges of peace, and all the operations of war. The knowledge of them, as in established use, is among the first elements of education, and is often learned by those who learn nothing else, not even to read and write. This knowledge is riveted in the memory by the habitual application of it to the employments of men throughout life".

With the signing of the "Metric Conversion Act of 1975" by President Ford in December 1975, this nation began a new program of changes from our customary system of weights and measures to that of the metric system which is commonly employed by the vast

majority of nations.

The technological sophistication of today's scales, metering systems and other commercial measuring systems represent a far cry from the simpler measurement tools of another era. While the early colonists measured their grains and other commodities with bushel containers or simple balances, the advent of electronics and digital systems have brought space age design in every day purchases of family food, gasoline for the car, heating oils for the home and other essential goods and services. The accuracy of these systems must be verified by weights and measures officials reflected by the Division of Standards to prevent error or fraud in the use of these measuring devices. The distribution chain of food and other commodities has resulted in wide varieties and sizes of prepackaged commodities. The checking of the accuracy of net contents of these packages occupy a significant portion of the field inspectors work. New regulatory concepts such as unit pricing and the development of new technology at the checkout counter using laser scanners and computer systems also come within the enforcement capabilities of the Division of Standards.

The lawmakers of this Commonwealth have long recognized that effective weights and measures administration is vital to the economic welfare of our community. It is a service of government that provides all parties involved in commercial transactions with the confidence of measurement protection relating to the cost and accuracy of quantity determinations. When one considers that over 3 billion dollars per year is spent on food in Massachusetts alone,

all of which is sold by weight or measure, the need for accuracy in measurement indeed becomes apparent. Likewise, the heavy volume of heating oils, gasoline and other petroleum products account for a staggering gallonage in Massachusetts which is heavily dependent upon petroleum products for our energy needs. Our latest information indicates that Massachusetts is consuming some 2.4 billion gallons of gasoline on a annual basis with an estimated value at the retail market of over 1.5 billion dollars. Also, according to recent information, Massachusetts uses some 2.4 billion gallons of distillates such as #2 heating oil and kerosene on an annual basis, representing approximately 1 billion dollars at the retail level. On a per capita basis, Massachusetts is the largest user in the nation and in the world of distillate fuels. Heavier petroleum products such as #4, #5 and #6 account for another 1.3 billion gallons of petroleum products used in Massachusetts for this class, not including utility use. This accounts for a total volume of some 6 billion gallons with a dollar value approximating 3 billion dollars. One can see that from merely these two areas of food and fuel alone, the economic significance related to accurate measurement by an effective weights and measures program administered through the Division of Standards. Taking into consideration all other retail and wholesale sales and services made by weight or measure, including industrial and agricultural sales, an estimated 20 billion dollars are readily involved in these transactions. Inspections relating to the giving of false or insufficient weight or measure involve a significant

portion of the Division's activities. During the last fiscal year, for example, Inspectors of this Division reweighed or remeasured 119,453 units of prepackaged commodities to make sure that the actual quantity and price were in agreement with the marked quantity and price. Inspections and testing of metering systems and volumetric measures for delivery of liquid fuel and those dispensing motor fuels are also typical of the many surveillance inspections made relative to the use of weighing and measuring devices. This is particularly significant in the protection of the consumer in the purchase of home heating oil. In one particular case this past year, investigation and inspection revealed that a heating oil seller was substituting delivery tickets to the purchaser and defrauding the purchaser by pre-printing a high volume on the delivery ticket than was actually delivered. Proceedings were instituted under the provisions of the Consumer Protection Act and reimbursement was made by the seller to his customers, together with a substantial settlement to the Commonwealth, to cover the cost of investigations. The seller also signed a consent decree and any further violation of this nature would place him in a position of significant penalties.

Section 5 of Chapter 98 provides that cities and towns shall keep standard weights and balances which were provided by the Commonwealth. These standards are to be tested by the Division of Standards either on the request of a weights and measures official or when this office deems such comparison should be made. The maintenance of required accuracy on reference and field standards provides the basic tool of weights and measures enforcement -- the knowledge and confidence that testing equipment is accurate within required levels.

It is through the facilities of this office that there is provided an unbroken, traceable relationship between the primary national measurement standards in the custody of the National Bureau of Standards, Washington, D. C., to the performance of a computing or prepackaging scale in a supermarket or the gasoline dispensing device in a retail gasoline station. All commercial weighing and measuring devices in the Commonwealth have this traceable feature to the National Bureau of Standards, through the efforts of the Division of Standards.

The Division's Standards Measurement Laboratory is the only laboratory of its type in the Commonwealth. Metrology personnel calibrate and certify reference and field standards for weights and measures officials throughout the Commonwealth and is a vital link in the weights and measures enforcement program at all levels. Another equally significant area encompassed in our laboratory is the calibration of weights, thermometers, volumetric standards and other precision measuring devices submitted by industrial and research organizations in this Commonwealth. Many of these firms are engaged in contracts with the military or other federal agencies and are required to furnish traceability to the National Bureau of Standards on their measuring instruments for the fulfillment of their contracts. The Laboratory is able to provide this service in a minimum of time. The Standards Laboratory is often called upon for assistance by quality and quantity control divisions of various manufacturing firms in the Commonwealth. Commercial devices which are conducive to laboratory testing are submitted on a regular basis.

Under the Division's program for granting approval to manufacturers of clinical thermometers, these instruments are submitted to the Laboratory by manufacturers, inspectors, hospitals and others for testing. Periodic testing of thermometers from stock of distributors are made on a random sample basis to insure compliance with standards.

The Standards Laboratory also performs work for other State and Federal agencies in certifying measuring instruments that are utilized in law enforcement.

During the past year, a total of 3,214 items were subjected to examination in our Standards Laboratory, covering all aspects of measurement noted in the preceding paragraphs.

Section 29 of Chapter 98 provides for the adoption by the Director of rules and regulations and specifications and tolerances relative to the design and use of weighing and measuring devices. This covers a wide range of measuring devices including scales (all types ranging from jewelers and pharmaceutical balances to large capacity vehicle scales, weights, liquid measuring devices, liquid measures, vehicle tanks used as measures, farm milk tanks, measure containers, milk bottles, lubricating oil bottles, graduates, linear measures, fabric measuring devices, cordage measuring devices, taximeters, odometers, dry measures and berry baskets and boxes.) The Division has the authority to make examination and test of prototype weighing and measuring devices. This examination is for the purpose of determining whether the design of the device is such to assure reasonable permanent accuracy and whether it may be used to

facilitate the perpetration of fraud. After devices are approved, all inspectors and municipal weights and measures officials are notified of the results of such tests so that they may proceed accordingly when encountering a device of this type in the field.

During the course of weighing and measuring devices submitted to this office, it has become evident that the trend in measurement is directed towards digital systems involving the broad use of electronic elements for load sensing, memory and computational capability and a variety of indicating systems that can be adapted to the needs of a particular industry or method of sale of commodities. This is not only limited to weighing systems with a broader application of load cells, but also to volumetric measurement systems that are beginning to incorporate this new technology in the measurement field. The more common device is the digital computing scale which provides to the consumer in clear, distinguishable indications the net weight, price per lb. and total price of the commodity being sold. Digital metering systems in the retail sale of gasoline have entered the market and are being used for the sale of this product both on a service and self-service basis. This has necessitated the updating of our specifications and tolerances to provide for new design and the development of test methods to insure that correct weight or measure is being provided to both the buyer and seller of commodities. The electronic components of many of these devices have programmed capability of readily converting from the customary to the metric system of measurement. There is no doubt that the application of measurement systems of more sophisticated design will

continually develop and require the weights and measures enforcement official to continually update his knowledge and background in these systems.

The Division of Standards has been given the responsibility of testing the metering systems in the Commonwealth involving the delivery of Liquefied Petroleum Gas (LPG) under the provision of Section 28-A of Chapter 98. This Division maintains a 100 gallon LPG prover which is the only one of its type in the Commonwealth. During the period covered by this report, 309 Liquefied Petroleum Gas metering systems were tested by this office and a substantial number of these devices were adjusted by the field inspector in charge of this program. Our last statistics compiled from available supply submitted by suppliers indicate a volume of 137 million gallons of this product which would represent approximately 66 million dollars on the retail market.

The Division also plays a significant role in the dairy industry as a result of Section 46-A of Chapter 98 which requires that each bulk milk tank shall be calibrated by this Division and conversion charts based on this calibration be proved for use with the tank. Since the time that the program was initiated, we have calibrated 3,835 bulk tanks and performed many retests on these installations as required by statute.

In 1976, 590 million pounds of milk was produced in Massachusetts with an annual income of 59 million dollars to Massachusetts Dairy Farms. Our measurement of milk does not stop at this point. Frequent inspections are made at dairy plants to insure proper measurement in

the packaging of milk for retail sale. Milk packages are also monitored at the retail level to insure accuracy in the distribution of this product.

Section 33 of Chapter 98 requires that this Division annually inspect and test all weighing and measuring devices, including scales and metering systems, used in State institutions for the receipt and disbursement of supplies. During the past year, 979 such devices were tested and 79 of these devices were adjusted by inspectors. These adjustments eliminated state expenditures in hiring professional service agencies to make such repairs.

Sections 33-A, Chapter 98 provides for the enforcement of weights and measures administration by the Division of Standards on all towns under 5,000 population. At the present time, there are 139 towns in this category. During the past calendar year 6,745 weighing and measuring devices were tested by inspectors in these localities together with necessary inspections relating to the sale of food, fuel and other commodities. The following is a statistical analysis for weighing and measuring devices tested by this Division in towns under 5,000 population for the 1976 calendar year:

DEVICES TESTED IN TOWNS UNDER 5000 - 1975

DEVICE	SEALED	UNSEALED	INACCUARATE	ADJUSTED
Scales, General	1651	44	39	773
Heavy Capacity Scales	58	10	10	8
Drug Balances	44	0	0	14
Weights	2312	5	5	9
Liq. Meas. Graduates	344	8	2	0
Gas, Oil, Grease Meters	1845	71	37	237
Vehicle Tank Meters	237	7	7	77
Bulk Storage Meters	18	0	0	3
LPG Meter Systems	17	0	0	14
Linear Measures	74	0	0	2
TOTALS	6600	145	100	1137

Under the provisions of Section 32 of Chapter 98, aside from the testing and inspection of city and town standards, the Inspectors of this Division are also empowered to make inspections and tests of any weighing and measuring devices located in any city or town in the Commonwealth. During the past year, 15,478 weighing and measuring devices were inspected and tested by inspectors of this Division throughout the Commonwealth. In those instances, where the devices were found to be inaccurate or not sealed as required by law, appropriate steps were taken by this office to insure conformance with the statutes. It will also be noted that Inspectors adjusted the measuring elements on 1,672 of these devices to effect more accurate measurement in the buying and selling of commodities. Assistance and instruction are also given to local weight and measures officials by Inspectors of this office in advising them in methods of testing various types of weighing and measuring devices and other practical information relative to the administration of their office.

The following is a summary by classes of weighing and measuring devices of inspections and tests made by this office in this area.

WEIGHING AND MEASURING DEVICES INSPECTED AND TESTED - - 1976 - 1977

ARTICLE	SEALED	UNSEALED	ACCURATE	INACCURATE	ADJUSTED
Scales, General	5899	136	5887	148	838
Heavy Capacity Scale	231	114	240	105	22
Drug Balances	68	0	68	0	18
Weights, Avd.Apoth.Metr.	3579	9	3579	9	17
Liq. Meas. Graduates	326	4	328	2	0
Gas, Oil, Grease Meters	2251	83	2266	68	368
Vehicle Tank Meters	622	78	673	27	149
Bulk Storage Meters	44	3	44	3	7
LPG Meter Systems	292	7	292	7	241
Linear Meas.	96	4	87	13	12
Clinical Thermometers	1569	63	1569	63	0
TOTALS	14,977	501	15,033	445	1672

This Division maintains a heavy capacity vehicle scale testing unit with the capability of transporting 34,000 pounds of certified test weights. During the past year, 413 tests of large capacity scales ranging up to 150,000 pounds were tested by Inspectors assigned to this specialized equipment. This unit is the only one of its type in the Commonwealth and all scales of this category are subject to examination with thistest unit. Typical of the type of scale tested in this class are those used in sand and gravel operations, crushed stone, scrap and waste, paving materials and a host of other endeavors in which truck weighing are required. Heavy capacity scales used for the sale of road building material to the Commonwealth are frequently tested in cooperation with requests made by the Department of Public Works.

As a result of the passage of Chapter 851, Acts of 1974, several additional responsibilities were placed on the Division of Standards.

1. An amendment to Section 87-A of the General Laws which provides for appointment of persons appointed to the Division of State Police as

weighers and measurers of motor vehicle and trailers and the loads of such vehicles and trailers. The appointment is to be made by the Director of Standards.

2. An amendment to Section 19-A, Chapter 30 of the General Laws, which provides that "in weighing of any motor vehicle or trailer or semi-trailer unit under this Chapter, portable scales may be used; provided, that such scales have been approved by the Director of Standards under Section 29 of Chapter 98; and provided further, that such scales shall be inspected at least once in each year by the Director of Standards or his Inspectors". During the past year, 30 wheel load weighers were subjected to extensive tests. This included testing each individual weigher up to 20,000 lbs. capacity and also testing these units in pairs. The Registry of Motor Vehicles have been enforcing the laws relative to vehicle overloading and have been collecting fines imposed by the courts based on determinations made with portable scales. The use of these portable scales would have no validity if they were not certified by the Division of Standards, and would for all practical purposes bring to a halt the enforcement of vehicle overloading through the use of portable scales.

OTHER INSPECTIONS 1976 - 1977

Hawker & Pedler Inspections	283
Fuel Oil Delivery Inspections	273
Unit Pricing Inspections	604
Motor Fuel Outlet Inspections	4,039
Complaints Inspections	259
Office Hearings	7
Prosecutions	1
Leather Measurers Examined	2
Motor Fuel Samples (Gasoline)	6,449
Motor Oil Samples	580
Diesel Fuel	68
Heating Oil Samples	147
Coin Operated Devices Tested for Approval	83
Prototype Examinations - Weighing and Measuring Devices	23

The Division of Standards has established a program for conducting technical training schools and seminars for all state and municipal weights and measures officials. During the past year, a Metric Awareness Seminar was conducted under the sponsorship of this Division for all weights and measures officials. Over 100 weights and measures officials representing state, city and town departments from throughout the Commonwealth, together with service personnel from industry and a number of other interested representatives from several other state agencies attended. The program consisted of an overview and introduction to the basics of metrics including a limited hands-on workshop. There was also a review of activity undertaken by the National Conference on Weights and Measures, the Weights and Measures Sector of the American National Metric Council,

test equipment, prepackaged commodities, interaction with International Standards and the experience of other nations in recent transition activity.

Under Section 37 of Chapter 98, each municipal weights and measures official is required to file an annual report with the Director of Standards citing certain required information relative to work performance.

Section 44 of Chapter 98 provides that the Director shall issue rules and regulations governing the uses of leather measuring devices. Inspectors of this Division make tests of these devices and also conduct examinations of employees in leather plants desiring to be certified as leather measurers. Section 1, Chapter95, indicates the requirement of certification by this office prior to such appointment.

Section 46, Chapter 98, gives to the Director of Standards certain responsibility with relation to examination of weighing and measuring devices used in industry for noncommercial purposes. Such examinations may entail in-plant testing or may be the subject of examination and analysis in our Standards Laboratory. Both smaller and larger employers in this Commonwealth have availed themselves of our services. This includes companies such as the General Electric Company, Raytheon Manufacturing Company, Radio Corporation of America, Sylvania and many other manufacturing and research and development organizations. Many of our Inspectors, during the course of their examination of measuring devices, used in manufacturing plants,

are able to make concrete suggestions relative to their quantity control programs that will keep these firms within required legal obligations not only in this State but other states in which they do business. This is a valuable service in that they will not be cited for violations in other jurisdictions that may be costly from the point of view of fines or having their goods removed from the market place.

Section 9 through 14, Chapter 98, deal with the provisions relating to the manufacture and sale of clinical thermometers. This has not been a most effective program to insure that all medical facilities and other users of mercury-in-glass clinical thermometers will receive accurate instruments used for diagnosis. There are upwards of a million instruments of this class sold annually. Prior to being able to sell a clinical thermometer in this State, a manufacturer must receive the approval of this office based upon submission of a substantial sample of his product. Random samples are also picked up at various outlets for testing in our Standards Laboratory.

Sections 14-A, 15, 16, 18, 19, 20 and 22 of Chapter 98 deal with particular designs of volumetric containers such as oil bottles, milk bottles, etc., that give to the Director the authority to grant to a manufacturer of such a device permission to affix the manufacturer's seal or mark to this class of product.

Section 1 through 5 of Chapter 99 deals with the use of the metric system and provides that the Director may test and seal metric weights brought to him for that purpose.

CONVERSION TO THE METRIC SYSTEM

In 1968, the Congress requested the U.S. Department of Commerce to undertake a study relative to the use of the Metric System in the United States. In 1971, the U.S. National Bureau of Standards published their report with a recommendation that the United States make a commitment to change to the metric system of measurement. They also recommended that rather than drifting to metric, that a carefully planned transition in which all sectors of our society would participate would be preferable. On December 23, 1975, President Ford signed Public Law 94-168 designated as the Metric Conversion Act of 1975. The basic premise of this law was to declare that the policy of the United States shall be to coordinate and plan the increasing use of the metric system in the United States and to establish a United States Metric Board to coordinate the voluntary conversion to the metric system. The membership of the Metric Board outlined in the act provides for representation from diverse areas of our society including engineering, science, large and small business, labor, governmental groups, educators and consumers. President Ford did make a recommended list of appointments to the Metric Board, including a representative of the National Conference on Weights and Measures, but these appointments were not made in time for Senate confirmation. Since we now have a new President, it is anticipated that a new Board will be selected for this important mission later this year.

The Division of Standards has been working closely with the National Bureau of Standards and the National Conference on Weights and Measures in making preliminary plans for metric transition. The Head Administrative Assistant of this Division serves as Chairman of the Liaison Committee of the National Conference on Weights and Measures and was also appointed by the National Bureau of Standards to serve as a member of the Committee on National Measurement Policy and Coordination. Past service on the Conference's Metric Planning Committee provided an opportunity for considerable input by this office into planning procedure and the setting of appropriate goals and work plans for metric transition as they affect weights and measures enforcement.

Recent activity in Massachusetts has seen the development of plans for the establishment of a Massachusetts Metric Board or Council which will be broadly representative of many groups and interests in Massachusetts. The Head Administrative Assistant of this Division has been asked to serve on this Council to assist in the transition process and provide for a focal point which will attempt to address the needs of our Commonwealth.

This office has been requested to make a number of presentations before groups of wide ranging interests relating to metric transition. There is no doubt that the number of such requests will increase as more positive steps toward change initiated.

Under Section 3 of Chapter 97, calibration of measuring tapes have been made for land surveyors, engineering groups, public works officials and law enforcement agencies utilizing a 50-foot bench standard which has traceability to a National Bureau of Standards reference calibration.

Under the provisions of Section 87-A and 87-B of Chapter 41, the Director appoints certain persons employed by the Registry of Motor Vehicles and the Division of State Police as weighers and measurers of commercial motor vehicles and trailers and the loads of such trailers. Appropriate records must be kept of such appointments in the event they must be attested to in Court.

Under Sections 7 through 10 of Chapter 94, the Director establishes rules and regulations relative to the manufacture and sale of bread. He also establishes tolerance levels relative to quantity determinations of such loaves. Prior to any court complaint being issued for violation of these sections, a hearing must be held before the Director.

This office enters into the enforcement of Section 92-B of Chapter 94 relative to sales of meat, poultry and fish by weight and Section 96 relative to methods of sale of fresh fruits and vegetables. Sections98 and 99-A relative to sizes of containers for sale of fruit and vegetables sold at wholesale and retail.

The Division enforces the provisions of Section 181 of Chapter 94 relating to the marking and labeling of quantity of contents of prepackaged commodities. Section 182 provides for the adoption of rules and regulations relating to such marking. This office has recently adopted regulations that are in conformance with the requirements of the Fair Labeling and Packaging Act.

Under Sections 238 through 249-F of Chapter 98, the Division has certain duties and functions relative to the sale and measurement of wood and coal.

Sections 283 and 284 provide for inspection and approval or disapproval of certain categories of coin-operated devices. Devices are inspected to determine whether there are facilities for returning the coin in the event the device does not perform the service. With relation to amusement devices, local city and town officials check for such approval prior to the issuance of local licenses, as required by Section 177-A of Chapter 140.

Sections 285 through 287 of Chapter 94 deal with the manufacture and sale of thread and yarns providing for requirements of net quantity statements, tolerance levels on measurement and filing of brand names and trade marks with the Division of Standards.

Another significant area of the efforts of this Division is directed towards the enforcement of Sections 295-A through 295-O of Chapter 94 which are known and cited as the Motor Fuel Sales Act. It provides for the annual licensing of all retail dealers engaged in selling motor fuel or automotive lubricating oil at retail. This office issues regulations under authority of this statute governing the advertising and sale of motor fuel and motor oil. It provides for mandatory displays of price signs on motor fuel dispensing devices, requires that devices be turned back to zero prior to each delivery and that the computing price be the same as the posted price. It provides for labeling of viscosity classifications of motor oils and standards methods of test to determine conformance to such markings. It provides for basic quality reference standards for motor fuels, particularly gasoline.

During the past year, 4,089 motor fuel outlets were inspected in connection with the enforcement of this Act and 4,250 gasoline measuring devices were subjected to inspections. Inspectors also picked up a substantial number of samples for quality testing in our Motor Fuel Laboratory. The Division maintains a Motor Fuel Laboratory in Arlington. This Motor Fuel Laboratory is the only State Laboratory in the Commonwealth involved in the testing of gasoline, motor oil, antifreeze and heating oils. The chief functions of this laboratory are:

(a) Conducting tests and analysis of gasoline and lubricating oil for the protection of the buyer from adulteration, substitution and mislabeling in the sale of these products. During the past year, 5,79[illegible] samples of gasoline were subjected to analysis; 580 samples of motor oil were tested and 80 octane numbers were determined.

(b) To conduct tests and chemical analysis of antifreeze necessary in the enforcement of Chapter 94, Sections 303-[illegible] through 303-M, which establish authority for promulgation of minimum standards of quality for antifreeze in order to assure the buyer of adequate and noncorrosive cooling system protection. During the past year, [illegible] manufacturers submitted 110 samples of various brands of antifreeze for examination prior to issuance of permits to sell this [illegible]

(c) Recent legislation provides for the testing and chemical analysis of various grades of [illegible] to determine compliance with minimum standards established by the Director of Standards, which assures the buyer of getting fuel [illegible] the proper grade and quality. During the past year, 147 samples of heating oils of various grades and viscosities were tested in our laboratory.

Our Motor Fuel Laboratory is equipped with an ASTM combination research and motor method octane rating engine. This is the only instrument of its type in the New England area. Our laboratory holds membership in the American Society for testing and Materials (ASTM) and the Society of Automotive Engineers (SAE).

Section 303-F of Chapter 94 provides for certain information relative to sale and delivery of fuel oils used for heating and cooking purposes. During the course of inspections of delivery of fuel oils, surveillance is made of the method of delivery, examination of the device and the inspection of appropriate certificates with the quantity and price marking noted on the certificate. During the past year, 273 inspections were made by Inspectors of this Division relating to the delivery of 101,036 gallons of home heating fuels.

The Division is the central licensing agency and is charged with the enforcement of General Laws, Chapter 101, relating to sales by transient vendors and hawkers and pedlers. With relation to transient vendors, aside from the license fee, the applicant must submit either a special deposit in the sum of $500.00 or file a bond in that amount payable to the Director. With regard to hawkers and pedlers, the Division issues town, city and state licenses and also special state licenses for disabled veterans and the blind. During the past year, 2,318 hawker and pedler licenses were issued by this Division and 160 transient vendor licenses were issued by this Division.

Chapter 6 of the General Laws, which was amended by Chapter 885 of the Acts of 1970, commonly known as the Unit Pricing Law, provides that the Director of Standards shall enforce regulations adopted by the Consumer's Council relative to unit pricing. During the past year, 604 store inspections were made relative to unit pricing

covering thousands of commodities.

Developments in the supermarket industry have evolved the implementation of a Point of Sales Weighing System and the more revolutionary Universal Product Code System. The Point of Sales Weighing System provides for the installation of a weighing platter in the checkout lane counter. An electronic cash register is interfaced with the scale and displays the weight indication and total price for the commodity. The register receipt also provides the weight information for these random weight commodities together with the price per lb. and total price. This Division has examined and tested such systems for type approval purposes. The Universal Product Code System is a totally new concept in retail marketing. Each retail package in the store will be either factory or store marked with a bar code symbol that can be read at the checkout counter by a laser scanner. The scanner would read the price on the bar code symbol that has been programmed by a computer system which eliminates the individual ringing up of sales by the clerk at the checkout counter. Such an automated retail checkout system is basically composed of prepackaged commodities bearing a machine readable or scannable symbol, a symbol scanner or detector, a terminal computer and customer display and a transaction or customer receipt.

Chapter 880 of the Acts of 1975 provides for the addition of Section 56-D to Chapter 98 of the General Laws which gives authority to this Division to make examinations and tests of automated electronic retail checkout systems to determine whether the price at which a commodity is offered for sale conforms to the price for which the purchaser is charged by such automated retail checkout system.

The Division of Standards investigates numerous complaints lodged either directly with the Division or referred to this office from other agencies, such as the Consumer Protection Division of the Attorney General's Office. During the past year, 259 such complaints were investigated. In addition, there are hundreds of telephone and letter inquiries seeking information on certain aspects of the laws, regulations or other functions of the Division of Standards.

FUEL ALLOCATION SUMMARY 1977

During the past year this office recorded a steady decline in the number of hardship applications for both gasoline and fuel oil. This was due to the fact that petroleum supplies were in abundance for most of the year. The only exception when demand exceeded supply was during a three week period at the peak of the heating season. During this period, the last two weeks of January and the first week of February, because of the extreme cold that permeated the east coast, fuel oil supplies had dwindled to perilously low levels. Consumption had been about 25 percent higher than the previous years. Many suppliers at this time placed all their wholesale purchasers-resellers on strict allocation to stretch existing supplies. Scheduled tanker deliveries of fuel oil were being diverted to other areas due to natural gas shortages. Terminals in up-state New York which serve the western part of Massachusetts did not receive scheduled deliveries because barges and tankers could not break through the ice-clogged Hudson River. Supplies from terminals located in the eastern part of the state were being trucked to these areas. Some suppliers went on a strict daily allocation to preserve existing supplies. This strict daily allocation caused considerable hardship for smaller independent resellers. In many instances these smaller resellers did not have sufficient product to fill household tanks of customers.

This meant that dealers had to make two trips instead of one to the same location placing an economic hardship on them due to increased costs of operation, i.e. extra fuel use, salaries, etc. etc. Because of these facts these resellers made application to this office for additional fuel oil supplies. In total this office processed 255 applications and allocated over 23 million gallons of fuel oil to hardship

applicants on behalf of their customers. This sudden surge of fuel oil hardship applications was ironic in a way as the allocation program for fuel oils was terminated officially by Federal edict on March 1, 1977. However, because of the product dislocations due to the intense cold and natural gas shortage during last winter, thought is being given to reinstituting the state set-aside program. This program has helped preserve the existence of the independent reseller who is the only stimulant in the marketplace as far as price competition is concerned.

This office processed 262 applications for gasoline under the provisions of the Federal Mandatory Petroleum Allocation Act. The applicants for the most part included independent resellers who had inadequate product available from their suppliers to fulfill their customer's needs. The major oil companies have closed marginal operations in an effort to economize. This had resulted in an increase in the number of independent operated retail locations and subsequent need for additional gasoline supplies for these new locations.

At the present time all reports appear to indicate that world oil supplies will exceed demand for a short term period of 3 to 5 years. This is due to national conservation efforts coupled with the Alaska pipe-line coming on stream and increased findings and oil production from the North Sea. This world surplus also is based on a stable Middle East with uninterrupted supply from that area. Listed below is a summary of Fuel Allocation during this past fiscal year.

Fiscal Year - 1977

Fuel Allocations

Product	Total Supply	State Set-aside	Gallons Allocated
	(Gallons)	(Gallons)	
Gasoline	2,603,850,600	78,459,730	30,029,868
No. 2 Fuel	2,394,986,090	79,923,380	22,482,000
Diesel	174,314,260	5,288,520	596,130
Kerosene	80,932,170	2,617,980	92,670
Propane	136,792,720	4,109,890	537,855
No. 4 Fuel Non Utility	80,137,500	—	—
No. 5 & 6 Fuel	696,739,960	—	—

	Gasoline	Other Fuels	Total
No. Applications Received	262	214	476
No. Applications Approved	255	195	450
% Approved	95%		